

ABSTRACT

For continuous high temperature operation over a service life in excess of twenty years, a flexible pipe joint includes various features that tend to reduce the temperature of the load-bearing flex element or reduce strain in the warmer elastomeric layers of the flex element. These features include a heat shield of low heat conductivity material integrated into the inner profile of the pipe extension and interposed between the central bore of the pipe joint and the flex element, low heat conductivity metal alloy components between the hot production fluid and the flex element, high temperature resistant elastomer at least in the warmest inner elastomer layer of the flex element, and a flex element constructed to shift strain from the warmer inner elastomer layers to the colder outer elastomer layers by providing greater shear area, different layer thickness, and /or higher elastic modulus elastomer for the warmer inner elastomer layers.